

## DETAILED ACTION

1. Applicant's response along with the Request for Continued Examination (RCE) filed on 03/27/2008 has been fully considered. Claims 14 and 15 are amended, claims 1, 2, 13, 16 and 17 are canceled, claims 18 and 19 are added, and claims 3-12, 14, 15, 18 and 19 are pending.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3-12, 14, 15, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohbayashi et al. (US 6,492,005 B1) in view of Farooq et al. (US 6,703,112 B1).

4. Ohbayashi teaches an ink jet recording sheet comprising a support and an ink absorptive layer on the support (abstract). The ink absorptive layer comprises boric acid (col. 15, line 51), metal ion compound (col. 18, line 10), and organic sulfur compound (col. 17, lines 14-31). The ink absorptive layer further comprises a binder (col. 13, line 61), antifoaming agents (col. 16, line 32), light stabilizers such as UV ray absorbers (col. 16, line 20), and/or hardeners (col. 15, line 28). The ink absorptive layer may be comprised of two or more layers (col. 17, line 1), and the more than two ink absorptive layers are equivalent to the claimed protective layer, dye fixing layer and ink

absorbing layer. Ohbayashi does not teach an organometallic ion compound as the metal ion compound.

5. Farooq teaches an ink jet coating composition to be provided on a support, wherein the composition comprises organometallic multivalent salt (col. 4, line 58 thru col. 6, line 56) and pigment drying agents such as aromatic carboxylic acid containing sulfonic acid group attached to the aromatic ring (col. 8, lines 32-50).

6. Ohbayashi and Farooq are analogous art because they are from the same field of endeavor that is the ink jet recording art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the organometallic ion of Farooq with the invention of Ohbayashi, and the motivation would be, as Farooq suggests, to take care of the pigment management function and to control the smudgeness and drying of the film (col. 3, line 25). Furthermore, the use of aromatic carboxylic acids along with metal ions is well known in the ink jet recording art in order to serve as drying agents for ink jet receptor media (col. 8, line 17).

7. Ohbayashi does not teach the claimed ratio of metal ion compound to organic sulfur compound. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the ratio of metal ion compound to organic sulfur compound in order to improve light fastness and minimize bleeding (col. 17, line 4 and col. 18, line 4 of Ohbayashi). A *prima facie* case of obviousness may be rebutted,

however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

8. Ohbayashi does not teach the amount of boric acid, and the amount of organic sulfur compound contained in the ink absorptive layer. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. It would have been obvious to one of ordinary skill in the art to optimize the amount of boric acid, and the amount of organic sulfur compound, and the motivation would be to obtain excellent glossiness and high void ratio, and to improve fading resistance, respectively. A *prima facie* case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

### ***Response to Arguments***

9. Applicant's argument is based on that Ohbayashi does not teach or suggest a protective layer including both (i) organic sulfur containing compound which forms complexes with metal ions, and (ii) a boric acid in an amount as claimed. This argument is not persuasive for the following reason. Ohbayashi teaches multiple layers of ink absorptive layer, and each of the ink absorptive layer comprise at least the claimed boric acid, metal ion compound and organic sulfur containing compound. The top ink absorptive layer meets the claimed protective layer containing boric acid, metal ion compound and organic sulfur containing compound, and the claimed protective layer

containing boric acid and organic sulfur containing compound. The ink absorptive layers other than the top ink absorptive layer meet the claimed dye fixing layer containing metal ion compound and the claimed ink absorbing layer. The reference of Farooq is used to teach the advantages of the organometallic ion compound as the metal ion compound.

10. For the above reasons claims 3-12, 14 and 15 stand rejected, and claims 18 and 19 are included in the rejection.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betelhem Shewareged whose telephone number is 571-272-1529. The examiner can normally be reached on Mon.-Fri. 8:00AM-4:30PM.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BS  
April 10, 2008.

/Betelhem Shewareged/  
Primary Examiner, Art Unit 1794